YUKON FISHERIES NEWS

A Publication of the Yukon River Drainage Fisheries Association

SPRING 2003

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

A United Voice for Downriver and Upriver Fishermen.

INSIDE THIS ISSUE...

A MESSAGE FROM THE DIRECTOR

BY JILL KLEIN,
EXECUTIVE DIRECTOR

The salmon fishing season has already started with the first reported subsistence chinook salmon reportedly caught on May 22nd in the Alakanuk / Emmonak area and May 23rd in the St. Mary's area. As the salmon return and the fishing season is upon us, people have been preparing. Fishermen are getting their boats, nets and camps ready, managers having been crunching data and getting their field sites ready, and private organizations like the Yukon River Drainage Fisheries Association (YRDFA) have been getting their local hires and research projects on line.

While some of the salmon runs have improved in the last couple of years, ADFG and USFWS anticipate that the recent trend of poor salmon production will continue this year and result in below average salmon runs into the Yukon River. Salmon fisheries will be managed conservatively in order to provide for escapements in Alaska and Canada (due to treaty obligations), subsistence harvests and possibly a small commercial fishery.

It is these past few years that have proved challenging to all those involved with fisheries issues on the Yukon River. Fishers have not been able to rely on the salmon harvest due to low returns. These low returns have prevented some fishers from meeting their subsistence needs, while others have not been able to make additional cash from commercial fishing. Low salmon returns have also been difficult for managers too, as they try to ensure that the salmon resource remains sustainable while the various fishery needs are met.

YRDFA is currently working, as it always has, to ensure that fishermen from the Yukon River are communicating with each other. This is especially important today, with low salmon returns. YRDFA would like to see that all needs can be met on the river and that meeting these needs does not come at the expense of other needs. Communication and cooperation were goals for YRDFA when it first formed twelve years ago, and still remains to be worthy goals today. Speaking with one voice for the Yukon River is no easy task, but YRDFA still feels up to the challenge. Please join us in our effort towards working together to ensure that salmon return for the future.

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725 Christensen Drive, Suite 3-B
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Phone: (907) 272-3141 / Fax: (907) 272-3142
TOLL-FREE 1-877-99-YUKON (98566)
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IN-SEASON SALMON MANAGEMENT TELECONFERENCES

BY JILL KLEIN,
EXECUTIVE DIRECTOR

The In-Season Salmon Management Teleconferences will begin June 3rd and continue until mid-September. The calls are held every Tuesday at 1:00 PM. To join the call dial 1-800-861-4084 and enter the participant code 9966815#.

These teleconferences work to bring together Yukon River fishers and the state and federal managers of the salmon fishery. This project documents distribution, abundance and user knowledge of fish species along with fisheries monitoring. Given the complexity of the fisheries management and the vast size of the Yukon River, teleconferences are a practical method for bringing together a diversity of fishers that utilize and manage the salmon resource. These conference calls have served over the past ten years to provide valuable insight by fishers into management strategies, particularly on how to accommodate subsistence fishing needs and schedules. Real time data on "where the fish are" is provided to the managers. Fishers also gain a better understanding of the different research and management tools, the goals and objectives of management and on the fishing conditions in other areas of the Yukon River.

The teleconferences usually last between 1 to 1.5 hours and we ask that if there are multiple callers from a community that you group together at a central location (Tribal Office, City Office, one of the callers homes, etc.) and appoint a spokesperson to represent the group. This helps make the teleconferences run smoother and gives all the communities on the line a chance to speak.

Below are the agenda and guidelines for the teleconferences.

Teleconference Agenda:

- Roll Call
- Subsistence reports (see below for questions to reference when reporting)
- Run assessment update by Alaska Department of Fish and Game
- Management Strategy (ADFG, USFWS)
- Input by YRDFA Board
- Public comments (Coordinating Fisheries Committee, Inter-Tribal consortiums, Yukon River Panel members, and others)

The subsistence reports should consider answers to these questions:

1) What is the current level of fishing activity and is participation up or down?
2) How far along are fishers in their subsistence harvests?
3) What is the quality of the fish?
4) What are the current water conditions?
5) Based on your observations, what is the run strength?

During the teleconference, please emphasize the following:

- First and foremost, constructive and courteous dialogue
- Please state your name before you speak
- Represent your region, but speak with a river-wide perspective
- Priority is to meet escapement goals (this includes U.S./Canada treaty obligations)
- Priority salmon use is for subsistence fishers
- Provide for other uses such as commercial fisheries, personal use and sport when surpluses are detected.

★ YRDFA would like to emphasize the importance of speaking with a river-wide perspective.
★ The teleconference offers people the opportunity to learn about different parts of the river. Please listen and speak respectfully.
★ This will increase understanding of how different parts of the river rely on the salmon fishery and raise our understanding of how to make complex decisions during times of low salmon returns.

We look forward to your participation. Please contact YRDFA if you have any questions or comments regarding the teleconferences for this upcoming season.

Thank you to our funding support: U.S. Fish and Wildlife Service, Office of Subsistence Management, Yukon Delta Fisheries Development Association, and the Yukon River Panel.

LEARN ABOUT FISH!

BECOME A FISHERIES BIOTECHNICIAN

The Yukon River Drainage Fisheries Association (YRDFA), with the National Park Service (NPS) and the University of Alaska Cooperative Extension Service, is sponsoring a three-week workshop to provide education and training to become a Fisheries Biotechnician. The goal of this program is to provide training for qualified individuals to obtain basic skills about operation of fisheries research projects, fish biology, and safety for work as entry-level fisheries technicians in fisheries field camps for federal, state, tribal, non-profit and private employers.

This training program will include both classroom and field (hands-on) experiences to provide a broad-based background for entry-level fisheries technician jobs. The location is to be determined.

The workshop will begin in early August and last approximately three weeks. There will be space for about 10 - 12 students. There is no cost to the student. Lodging, food and travel will be provided by YRDFA. Stipends are available for students as well as college credit.

This will be a great opportunity to learn about fish and fisheries research and to learn new skills to become a fisheries technician for work at summer research field camps.

Contact YRDFA toll-free at 877-999-8566; or, joe-yrdfa@alaska.com for more information and applications.

2003 YUKON RIVER SALMON OUTLOOK

BY ALASKA DEPARTMENT
OF FISH AND GAME

Chinook Salmon

Yukon River chinook salmon return primarily as age-5 and age-6 fish, although age-4 and age-7 fish also contribute to the run. Spawning ground escapements in 1997, the brood year producing 6-year-old fish returning in 2003, was the 3rd largest observed in Canada, largest observed in the Tanana River tributaries, and some of the largest in lower Yukon River tributaries. However, the return of salmon since 1998 has been well below average in strength indicating abnormally poor production from parent year escapements. Assuming continued below-average trends in survival rates of parent year escapements, the return of 5- and 6-year-old fish in 2003 is expected to be below average. However, a strong 4-year-old component from 2002 and signs of improved ocean conditions may indicate improving survival rates for chinook salmon.

Overall, the 2003 chinook salmon run is anticipated to be below average to poor in strength. Given the uncertainties associated with recent declines in productivity, it is anticipated the run will support a normal subsistence harvest and possibly a small commercial harvest. The fishery management will be based upon in season assessments of the run. If in-season indicators of run strength suggest sufficient abundance exists to have a commercial fishery, the commercial harvest in Alaska could range from 0 to 20,000 chinook salmon (0 to 18,000 fish in the Lower Yukon Area and 0 to 2,000 fish in the Upper Yukon Area). This range of catch is well below the historical (1961-2001) average of approximately 102,000 chinook salmon.

Summer Chum Salmon

Summer chum salmon runs in 2003 will be dependent on the escapements, and the production of the escapements from 1998 (age-5 fish) and 1999 (age-4-fish). Spawning escapements in 1998 were slightly above the low end of the recently established Biological Escapement Goal (BEG) ranges in the Anvik and East Fork Andreafsky Rivers. In 1999, the Anvik River escapement also surpassed the low end of the BEG, but the escapement into the E.F. Andreafsky was half the low end of its BEG. It appears that recent declines in the productivity of Yukon River summer chum salmon are continuing. Production of Anvik River chum salmon, which represent the largest spawning stock of Yukon River summer chum salmon, has fallen well below one return per spawner for the most recent returning brood years. There is uncertainty as to how long this trend will continue. While exact reasons for the run failures are unknown, it is widely speculated that poor marine survival related to localized weather and ocean conditions in the Bering Sea are the primary contributing factors. Weakness in Yukon River salmon runs has been attributed to reduced productivity, and not the result of low levels of parent year escapements. However, similar to chinook salmon, 4-year-old summer chum salmon showed an increased abundance in 2002.

Even though the 2002 summer chum salmon run was twice that of the 2000 and 2001 runs, the 2003 summer chum salmon run is anticipated to be poor in strength. Similar to chinook salmon, it is anticipated the run will support a normal subsistence harvest and possibly a small commercial harvest. If in-season qualitative indicators of run strength suggest sufficient abundance exists to have a commercial fishery, the commercial harvest in Alaska could range from 0 to 150,000 summer chum salmon.

Fall Chum Salmon

Yukon River fall chum salmon return primarily as age-4 or age-5 fish. A Ricker spawner-recruit model was used to predict the returns from the 1997 to 2000 parent years that will contribute to the 2003 run. This process resulted in a projection of 647,000 fall chum salmon with the following approximate age composition:

Age-3 fish	10,000	(2000 Brood Year)	1.5 %
Age-4 fish	417,000	(1999 Brood Year)	64.5 %
Age-5 fish	212,000	(1998 Brood Year)	32.7 %
Age-6 fish	8,000	(1997 Brood Year)	1.3 %
Totals	647,000	Four Brood Years	100 %

There is a level of uncertainty associated with the 2003 Yukon River fall chum salmon outlook. Very dramatic declines in salmon returns to western Alaska have been realized since 1997 and this trend continued to most areas in 2002.

The escapement for each of the four parent years that will contribute to the 2003 run were extremely poor with only 1997 above the minimum drainage-wide escapement goal of 350,000 fall chum salmon. The major contributor to the 2003 fall chum salmon run is anticipated to be age-4 fish returning from the parent year 1999. The majority of the escapement goals have not been met since 1998, particularly in the upper Yukon River drainage. Should the factor(s) that affected the productivity of fish from the parent years that returned in 1998 and 1999 carry over to fish expected to return in 2003, a weak return is again likely to materialize.

Beginning in 1999 the projection has been presented as a range that includes the normal point projection as a high end. The lower end of the range for 2003 was determined by reducing the normal point projection by the average ratio of observed to predicted returns for 1998 through 2002. During this time period the observed return averaged only 40% of the predicted. The 2003-projected run size range of return is 260,000 to 650,000 fall chum salmon. The average run size for the most recent decade for odd-numbered years is 841,000 chum salmon with the long-term average over one million fish. However, should the productivity continue to be poor it is likely that total run size in 2003 will materialize toward the mid-point of the projected range.

Run assessment will primarily be based on in season indicators and subsistence harvest opportunities may be reduced to pro-

vide for escapement based on the levels stipulated in the Yukon River Drainage Fall Chum Salmon Management Plan.

Coho Salmon

Although comprehensive escapement information on Yukon River drainage coho salmon is lacking, it is known that coho salmon primarily return as age-4 fish and overlap in run timing with fall chum salmon. An average to below average return of coho salmon would be anticipated in 2003, based upon parental escapement levels observed in several spawning streams in 1999 and assuming average survival.

photo by Robert Gibson, CA

YUKON RIVER PANEL UPDATE MAY 2003

BY HUGH MONAGHAN,
EXECUTIVE SECRETARY
YUKON RIVER PANEL

With benefit of the new agreement on the Yukon River, the Yukon River Panel began its operations in earnest with a meeting in November 2001 in Anchorage to gear up for full implementation of Panel business in 2002. A previous newsletter reported on that meeting and related progress.

At the March 2002 Panel meeting in Whitehorse, fall chum and chinook salmon management details were agreed upon and 58 projects were approved for funding from the Restoration and Enhancement (R&E) Fund for 2002. The Panel discussed a number of technical and program planning processes to ensure ongoing coordination of research and management projects for Yukon River salmon stocks and habitat in Alaska and Yukon.

At the November 2002 meeting of the Panel in Anchorage the Joint Technical Committee (JTC) reported on management of chinook and fall chum stocks and fisheries, and provided estimates of stock escapements to the Canadian border. A review of several technical projects that were of particular interest to Panel members: radio tracking of salmon, Ichthyophonus infection of chinook salmon, and review of information pertaining to enforcement activities and identification of Yukon River chinook and chum salmon harvested in the Bering Sea. Of the 112 R&E conceptual proposals received for 2003, 66 were approved by the Panel for further development as detailed project proposals considered during the March 2003 meeting. Panel bylaws were amended to reflect current Panel operating needs, various technical and program management planning processes were further discussed, and a detailed proposal to develop a communications plan for the Panel was granted approval.

The formal signing of the new Agreement occurred in Washington D.C. in December 2002. Some Panel members, alternates, and agency staff were present. The Panel had its own northern celebration of the Agreement in Whitehorse during its March 2002 Panel meeting. Many at this celebration had been involved in the earlier negotiations, which began in 1985. A very good time was had by all present.

The March 2003 Panel meeting advanced key agenda items from previous meetings, including approval of a detailed R&E Fund planning and evaluation project to ensure effective long term use of the Fund. (The detailed planning session of the Panel's R&E committee and key technical staff was subsequently completed during the week of May 18th.) The Panel approved 50 R&E projects for 2003 amounting to approximately $1.1 million U.S. – the list of these projects is provided in this newsletter.

The Panel approved implementation of a detailed communications plan to help provide information from the Panel to all interested persons, and to assist Panel members receiving feedback from the communities on Panel affairs, including management of Yukon River salmon stocks of Canadian origin and related fisheries. The Communications Committee guiding this plan consists of Panel member Lorelei Smith (Whitehorse), Alternate Panel member Andy Bassich (Eagle) and Jill Klein of YRDFA. Readers will begin to see results of their work this fall.

Stock run size estimates were provided by the JTC, and the Panel agreed on escapement targets to guide agency managers in the 2003 fisheries.

The Yukon River Panel sets escapement numbers for the salmon season. At their spring meeting, the escapement goals set by the Panel for Yukon River Chinook salmon was 28,000 if a commercial fishery was prosecuted in the Alaskan portion of the drainage; if no commercial fishing is allowed for chinook, and then the escapement target would be 25,000. For chum salmon, the escapement target for Canadian-origin, Yukon River main stem fall chum salmon is 65,000. The Panel agreed to this as part of a 3-cycle rebuilding plan. For the Fishing Branch the 2003 management goal is 15,000 fall chum salmon.

2003 RESTORATION & ENHANCEMENT FUND

FUNDED PROJECTS BY THE YUKON RIVER PANEL

	Project #[1]	Project Title	Project Proponent	$US/Cdn[2] Rec.
U.S.	URE-01-03	Radio Tag Recovery – Lower Yukon River	BSFA[3]	$7,000/10,400
	URE-02-03	Mountain Village Fall Season Gillnet Test Fishery	BSFA	15,000/24,300
	URE-03N-03	Chinook Salmon Capture for Radio Telemetry Study	BSFA	60,000/88,000
	URE-06-03	Kaltag Fall Chum/Coho Drift Gillnet Test Fishery	City of Kaltag	22,500/33,300
	URE-11-03	In-Season Management Teleconferences	YRDFA	7,000/10,400
	URE-12-03	Enhance Mainstem Fall Chum Escapement	EASFA[4]	15,800/23,300
	URE-13-02	Ichthyophonus Impact Survival & Fecundity – Chin	Kocan/Hersh. U Wash.	38,800/57,400
	URE-15N-03	Kaltag Subsistence Chin. Drift Fishery Scale Smplg.	City of Kaltag	1,400/2,100
CANADA	CRE-01-03	Yukon River Juvenile Migration Timing	YRCFA, DDRRC, HS[5]	32,700/47,000
	CRE-02-03	Radio Tag Recovery, Tr'ondek Hwech'in Trad. Terr.	YRCFA/THFN	5,100/7,500
	CRE-05-03	Klondike River Sampling	YRCFA/THFN	9,600/14,200
	CRE-07-03	2003 'First Fish' Youth Camp	YRCFA/THFN	700/1,000
	CRE-11N-03	In-season Management Fund (Test Fisheries)	YRCFA/THFN	50,700/75,000
	CRE-13-03	Chandindu River Salmon Enumeration Weir	YRCFA/THFN	33,800/50,000
	CRE-15-03	Juvenile Chinook/Coho Habitat Assessment	NYRRC/VGFN[6]	31,200/47,600
	CRE-16-03	Traditional/Local Knowledge Salmon Survey	NYRRC/VGFN	6,700/9,900
	CRE-17N-03	Chinook Radio Tracking/Telemetry Pilot Project	NYRRC/VGFN	11,100/16,400
	CRE-19N-03	Lower Mayo River Chinook & Channel Assessment	Nacho Nyak Dun FN	24,100/35,700
	CRE-23-03	South McQuesten River Water Quality Monitoring	Nacho Nyak Dun FN	9,00/13,300
	CRE-26N-03	Weir Feasibility Study – Stewart River Watershed	NND	10,100/14,900
	CRE-27N-03	Chum Tagging Test Fishery – Porcupine River	NYRRC/VGFN	33,200/49,100
	CRE-29-03	Chum Spawning Ground Recoveries – Minto Area	Selkirk First Nation	9,000/13,300
	CRE-33N-03	Big Creek Investigation	LSCFN[7]	4,300/6,300
	CRE-34N-03	Little Salmon Carmacks FN Salmon Habitat Surveys	LSCFN	9,100/13,500
	CRE-35-03	Klusha Creek & Tatchun Creek Beaver Management	LSCFN	9,200/13,600
	CRE-37N-03	Blind Creek Chinook Salmon Enumeration Weir	RRDC[8]	23,600/35,000
	CRE-43N-03	Compilation & Mapping Fisheries Data TTC TT	Teslin Tlingit Council	10,800/16,000
	CRE-47-02	Teslin River Sub-basin Stewardship	Teslin Tlingit Council	27,000/40,000
	CRE-50-03	McClintock River Watershed Sal. Management Plan	Kwanlin Dun FN	37,800/56,000
	CRE-53N-03	Salmon Planning White River Traditional Territory	White River FN	21,800/32,300
	CRE-54-03	Takhini River Chinook Investigations and R&E Plan	Champ. Aishihik FN[9]	10,100/15,000
	CRE-55-03	Upper Nordenskiold River Salmon Restoration	Champ. & Aishihik FN	10,100/15,000
	CRE-58N-03	Traditional & Local Knowledge Survey – Kluane	Kluane First Nation	10,100/15,000
	CRE-59-03	Beaver Mngmt - Chum Spawning Sloughs - Kluane	Kluane First Nation	3,800/5,600
	CRE-62N-03	Juvenile (Salmon) Identification Field Book	Jake Duncan	3,300/4,900
	CRE-63-03	Whitehorse Rapids Hatchery Coded Wire Tag	Y.F.&G. Assoc.[10]	27,700/41,000
	CRE-64N-03	Wolf Creek Monitoring	Y.F. &G. Assoc.	3,400/5,000
	CRE-65-03	McIntyre Creek Salmon Incubation Project	Yukon College - NRI	29,00/42,900
	CRE-67-03	Yukon Schools Fry Releases & Habitat studies	Streamkeepers Nor Soc	2,700/4,000
	CRE-71N-03	Salmon Habitat Mngmt Plan – City of Whitehorse	City of Whitehorse	6,800/10,000
	CRE-72-03	Comm. Fish Plant Upgrades Value Added Proc. (Ph. 2)	C.Ball/S.Fleurant	13,500/20,000
	CRE-75-03	Value Added Study – Phase 3 (Business Plan)	YRCFA, THFN	26,800/39,600
	CRE-77N-03	Chin. Aerial Tel. Survey – Cdn. Section YR Watershed	B. Mercer	57,800/85,600
	CRE-78-03	Chin. Radio Tel. - Canadian Section YR Watershed	Haldane Env. Services	119,800/164,000
	CRE-79-03	MHC[11] Variation & Stock ID (Chum) Yukon River	T. Beacham/DFO	33,800/50,000
	CRE-87N-03	Germaine Creek Demonstration Restoration Project	M. Miles & Assoc.	28,000/41,500
	CRE-95-03	Yukon Queen II Investigations	DDRRC	12,200/18,000
	CRE-98N-03	Yukon Stewardship Program	Y.F.&W.M. Board[12]	101,400/150,000
	CRE-104N-03	Yukon Fisheries Field Assistant Program	Yukon Coll./Dawson	37,900/56,100
	CRE-106N-03	Chum Fishery Substitution	NYRRC/VGFN	9,900/14,600

1 N – indicates a new project; while, the absence of the N indicates continuance of a previous project.

2 Based on an exchange rate of $1US=$1.48Cdn.

3 BSFA - Bering Sea Fishermen's Association

4 EASFA – Eagle Area Subsistence Fisherman's Association

5 YRCFA – Yukon River Commercial Fishers Association
THFN – Tr'ondek Hwech'in First Nation (Dawson City area – North Cdn. Yukon River Mainstem)
DDRRC – Dawson District Renewable Resources Council
HS – Yukon River Salmon Committee Habitat Steward

6 NYRRC – North Yukon Renewable Resources Council (Old Crow)
VGFN – Vuntut Gwitchin First Nation (Old Crow)

7 LSCFN – Little Salmon Carmacks First Nation (Carmacks area)

8 RRDC – Ross River Dene Council

9 Champagne & Aishihik First Nations – Haines Junction area, White River Sub-basin upper section, and some of Upper Lakes/South Mainstem and Middle Mainstem of the Canadian section of the Yukon River.

10 Y.F.&G. Assoc. – Yukon Fish and Game Association

11 MHC – Major histocompatibility complex

12 Y&FWMB – Yukon Fish & Wildlife Management Board, mandated by the Yukon First Nations Umbrella Final Agreement.

YRDFA HOLDS ITS THIRTEENTH ANNUAL MEETING

BY ERIN McLARNON, EDUCATION & INFORMATION COORDINATOR

photo by Bill Fliris, Tanana

Full House - We filled the Kotlik Community Hall each day of the meeting. At one point 68 participants were counted!

The community of Kotlik hosted the 13th Annual Meeting of the Yukon River Drainage Fisheries Association (YRDFA) on February 24th – 27th. There were 60+ participants from villages all along the river and its drainages, even as far as Eagle. Many of the Regional Council members, state and federal agency representatives were also present.

The agenda was packed with many items for the Board of Directors and public to discuss. Topics of discussion were YRDFA projects, fishery reviews and outlooks, customary trade, contaminants study, chinook telemetry and various updates from other groups.

The meeting was productive and led up to the Board of Directors taking action on seven items. They were:

- To thank the Kotlik Traditional Council, the Kotlik School, the City of Kotlik, and the people of Kotlik for their generosity and hospitality.
- To request the offshore fishing industry and the National Marine Fisheries Service for data at the end of the 2003 fishery showing the results of the efforts made to avoid salmon by-catch. YRDFA will evaluate the results and, if they are effective, pursue agreement with the fishing industry to standardize those practices demonstrated to effectively reduce salmon by-catch to minimal amounts that do not contribute to problems with salmon returns to the Yukon River.
- To support collaborative efforts between the Alaska Department of Fish and Game at the sub-committee level of planning for future *Ichthyophonus* research that takes place in the Yukon River drainage.
- To support Proposal 463 submitted to the Alaska State Board of Fisheries by the Alaska Department of Fish and Game to clarify current regulations relating to fishing periods. The proposal would end the subsistence fishing schedule and revert to pre-2001 subsistence fishing period regulation in the Yukon River when in-season indicators suggest that the run strength is sufficient in abundance to allow a commercial salmon fishery in that district or sub-district.
- To support reworking of the Fall Chum Management Plan and to submit a proposal to the Alaska State Board of Fisheries for the upcoming 2003/4 meeting schedule. Additional materials and meetings will take place in order to rework the plan.
- To support the Tanana Rampart Manley (TRM) Advisory Committee of the Alaska Department of Fish and Game proposal to the Alaska State Board of Fisheries to change the Optimum Escapement Goal to a Biological Escapement Goal for the Toklat River.
- To support two additional years of funding for the Radio Telemetry Project on the Yukon River with the understanding that important data is being recovered during in-season management. Yet it is potentially invasive to salmon and additional methods of gathering data will be looked into by agencies involved in management of the Yukon River salmon fishery.

The meeting was an excellent opportunity to learn about current fisheries research and issues concerning the Yukon River and its drainages. It was also a great time to meet folks from other communities and to discuss issues with state and federal agencies.

The fourteenth annual meeting is set to take place in Allakaket along the Koyukuk River, dates to be announced. Thank you to our funders, the U.S. Fish and Wildlife Service, the Bering Sea Fishermen's Association and NOAA Fisheries for making this meeting possible.

photo by Bill Fliris, Tanana

Our Hotel - This is where most of the participants stayed. The new Kotlik School had just opened the week before we arrived.

photo by Bill Fliris, Tanana

Important Discussion - Jill Klein, Harry Wilde, and Pollock Simon listen as Andrew Kelly speaks about the importance of salmon.

photo by Bill Fliris, Tanana

Time to Go Home - This is one of the MANY charters that flew us to and from Kotlik.

ICHTHYOPHONUS IN YUKON RIVER KING SALMON;
What Does It Mean for Subsistence and Commercial Fishing?

BY JOE SULLIVAN,
PROGRAM DIRECTOR

Light years ago, just before the invention of dirt (1988), I was a fish pathologist for the Alaska Department of Fish and Game (ADFG). A Yukon king salmon (chinook) caught near Koyukuk had been sent into the Fish Pathology Lab having grayish-brown streaks throughout the flesh. A subsistence fisher had caught it and was worried there might be a human health problem. A quick look at a piece of the tissue under the microscope revealed what it was, *Ichthyophonus* (Fig. 1), a fairly large (a millimeter or so in diameter) protist parasite, but one that has been in found in many different species of fish in many, many parts of the world. In other words, it was curious but no big deal and, as I said in the report then "…not known to be of human health significance." But I also said "Please do not dispose of any raw fish parts from similarly infected fish in the future into streams, rivers or other wild waters in order to prevent the infection of additional fish." (Fish Pathology Report 890026).

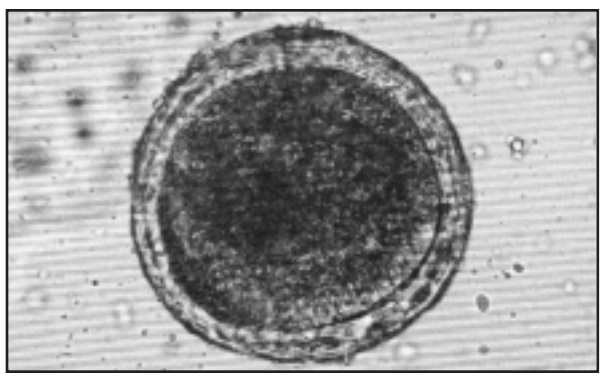


Fig. 1. *Ichthyophonus* resting spore, from Yukon chinook salmon taken near Koyukuk, June 23, 1988.

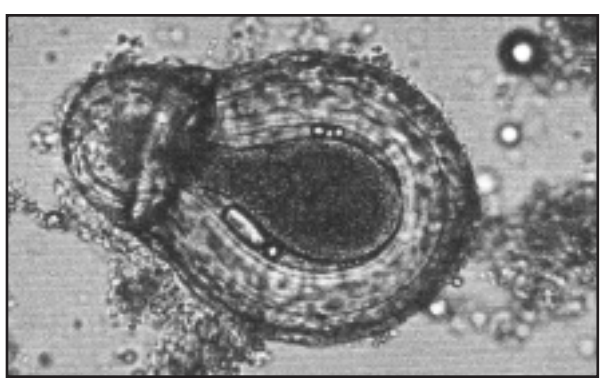


Fig. 2. *Ichthyophonus* beginning to bud, from Yukon chinook salmon taken near Koyukuk, June 23, 1988.

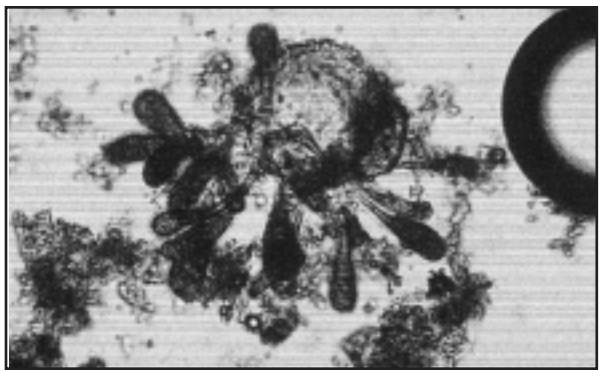


Fig. 3. *Ichthyophonus* vegetative stage with aseptate hyphae, from Yukon chinook salmon taken near Koyukuk, June 23, 1988.

Move ahead another few years and *Ichthyophonus*, together with a viral disease (Viral Hemorrhagic Septicemia) was killing herring in Prince William Sound, but the question then was, did the Exxon Valdez Oil Spill (EVOS) have anything to do with it? Exposure to oil can weaken a fish's immune response system so there was an arguable case, but of all fishes, herring seem to be about the most susceptible to *Ichthyophonus* so that was not really a big surprise either. Dr. Dick Kocan of the University of Washington was one of the researchers looking at this disease in the herring.

Now fast-forward another ten years from the Prince William Sound herring, 15 years beyond the Yukon chinook case. I left Fish and Game behind, left the country, in fact, to join the Peace Corps for a while, and when I came back and joined YRDFA, here was my old acquaintance, *Ichthyophonus*, once again in Yukon River kings, and once again, Dr. Kocan was hot on its trail. This time though things had changed. Infected salmon were not the occasional oddball fish, but much more common and thus were getting people's attention beyond just the "What's this?" question. Some people along the Yukon noticed a different odor to fish heavily infected with *Ichthyophonus* and they said it does not dry correctly. They wanted to know how it was going to impact their subsistence and commercial fishing up and down the river and on both sides of the US-Canada border. Consequently, the Joint Technical Committee (JTC) of the Yukon River Panel funded Dr. Kocan to investigate. The jury is not in yet on the disease's impacts, but some of the results Dr. Kocan has thus far are not good news. In 2002, he found that about a quarter of the chinook salmon entering the Yukon were infected with *Ichthyophonus*, but only about half of those showed clinical signs of disease (a fish, a human or any animal can be carrying a pathogen, but not always show signs of disease). As the fish moved up river a bit larger proportion of the infected fish showed clinical signs of disease UNTIL spawned out fish were examined. As the fish moved up river, a bit larger proportion of the infected fish showed clinical signs of the disease until spawned-out fish were examined. The prevalence of detectable *Ichthyophonus* actually declined to half or less of what it had been. Kocan believes that many of the infected fish died from the disease before reaching the spawning grounds, and thus a higher proportion of the fish that arrived were those uninfected fish, which did not have to combat the disease on their way upstream.

Chinook are believed to acquire *Ichthyophonus* infections by eating infected marine fish. When the prey fish is digested in the salmon's gut, amoeboid forms penetrate the gut wall and are most likely carried by the blood or lymph to all parts of the fish's body. They then form resting stages (Fig. 1), which appear as granular nodules or grayish-brown streaks. Later, the spores begin to bud out (Fig. 2) and form aseptate hyphae (Fig. 3) which continue to proliferate throughout the fish's body forming more resting stages followed by more budding and hyphae and so one until the fish dies. When the fish dies, the pathogen continues to proliferate, the resting spores become multinucleate (many nuclei) forming endospores and presumably are able to infect other aquatic organisms that consume them, thus working their way through the food chain again as small fish are consumed by larger fish and so on. For the most part, transmission from one fish to the next seems to take place largely in salt water

though some examples of freshwater transmission have been noted. Indeed, most fish from which *Ichthyophonus* has been isolated live in marine waters, but once infected, a fish typically carries the pathogen for the rest of its life whether it moves into freshwater, as salmon do to spawn, or remains in saltwater.

As noted, once a fish is infected with *Ichthyophonus*, it is generally believed that it never recovers from the infection. Given enough time, infections eventually do tend to become "clinical" and the fish dies. This might take a very long time under some circumstances, but the only way for there to be a smaller proportion of infected fish on the spawning beds than there are during the earlier parts of the salmon's journey is for some of the infected fish to die along the way without some of the uninfected fish themselves becoming infected. Since *Ichthyophonus* is primarily if not entirely picked up by the fish in saltwater, this scenario is very plausible. So what proportion of the fish never make it to the spawning grounds because of this pathogen? Excluding spawn-outs, Kocan found that 29.9% of all males tested in the Yukon or Tanana and 29.7% of the females were positive for *Ichthyophonus* infections. Conversely, 16.4% of the spawn-out males and 9.9% of the spawn-out females from the Chena and Salcha tributaries to the Tanana were positive. What happened to the extra 13.5% of the males and 19.8% of the females if they did not die somewhere along the way? Dr. Kocan believes that this is precisely what happened and he is sampling fish again this year to see whether he gets similar results.

If the problem of pre-spawning mortalities due to this disease really is of this magnitude, escapement goals may have to be increased to account for these losses. The only way to do that will be to decrease the numbers fish available to commercial and subsistence users. That would directly impact people and so Congress has provided ADF&G a grant to study *Ichthyophonus* and hopefully find a way to accommodate it in their management decisions. They formed a committee that includes some of their own managers and fish pathologists, a federal manager, Canadian researchers and YRDFA (currently I am the YRDFA representative). This *Ichthyophonus* Committee plans to build on what Dr. Kocan has learned and coordinate with his studies, which, as noted above, are continuing.

If infections are almost entirely marine in origin, how can the prevalence of infection go up as the fish move upriver? The answer is that the prevalence may not actually go up; it just might be easier to detect the infections that were always there in a fish, but originally were below the sensitivity level of the test being used. The most sensitive test currently used (which is also the test Dr. Kocan uses) requires culturing heart tissue in growth media, which obviously is a fatal procedure. If a non-lethal test could be developed that is at least as sensitive as the culture method, many more fish could be tested, released alive and development of the disease in individual tagged fish could be tracked. The *Ichthyophonus* Committee is asking Dr. Mike Kent, a researcher at the Oregon State University, to develop a PCR test (polymerase chain reaction) to detect minute amounts of *Ichthyophonus* DNA in a fish's blood. Blood can be drawn from a fish without killing it and if the PCR test works as well with this pathogen as it has with many others, it should be able to detect the very low level initial stages of an *Ichthyophonus* infection in a fish. They could then radio tag these fish and uninfected fish to find out whether there is a difference in pre-spawning mortality, whether different stocks have different infection rates, whether any fish are picking up their infections in freshwater and so on. As the test is being developed, the same fish will be tested for Dr. Kocan's study and for Dr. Kent's and thus the methods themselves will be directly comparable.

There is some speculation that global warming is causing Yukon waters to warm up and make the salmon less able to fight an *Ichthyophonus* infection. Thus it could be that just as many Yukon salmon were infected in the 1980's as there are today, but the greater stress of the higher temperatures is turning more of those hidden infections into clinical disease. Some of the tags placed in fish periodically record the temperatures to which a fish is exposed as it moves upriver. Some day with enough data, we may be able to say whether a fish infected with *Ichthyophonus* and exposed to higher water temperature stress is more likely to develop clinical disease and die before spawning. That would mean that if global warming continues to increase Yukon water temperatures, the proportion of disease and pre-spawning mortality among *Ichthyophonus*-infected fish could go up, and higher escapement goals would be necessary. If, that is, they are all linked and this has not been shown to be the case yet. But it is the research we need to do to find the answers. Whatever the reason for the apparent increased numbers of infected Yukon chinook salmon, it does appear that it is going to be a factor we must consider for some time into the future. We cannot cure the fish so we must live with it, but, like anything else, the more we know, the better decisions we can make to do that.

LETTER TO THE EDITOR

Dear Editor,

Fishermen in the Tanana area (and probably elsewhere in the Yukon drainage) have recently received several bulk mailings from the Federal Subsistence Board, and the Office of Subsistence Management (OSM), the Federal agency charged with the job of protecting subsistence rights according to the provisions of the ANILCA Act.

For those of you who are not up on every nuance of the controversies surrounding subsistence, the basics are that a suit charging that the rural preference for subsistence was unconstitutional according to Alaska State law was filed about a decade ago. Because of the State Legislature's failure to come up with a way to bring Alaska law into line with the Federal ANILCA law, the Feds followed up on their threat to take over management of subsistence on Federal lands and waterways in order to protect rural Alaskan's subsistence rights.

So, for the past several years, the Federal Office of Subsistence Management has been attempting to manage and regulate the Yukon River subsistence salmon fisheries according to the law as laid out in ANILCA.

Among other things, this act made formal mention of something that has occurred among Native people along interior Alaska rivers for time immemorial: "customary trade" of subsistence salmon and their parts. The act at the same time legitimized the "limited exchanges for cash, not to constitute a significant commercial enterprise" of salmon and their parts which has been an accepted part of Alaskan village economies for at least a hundred years.

What the Act refers to here, among other things, is the making of dried smoked fish strips, which traditional family fish camps would put up for their own use, with any extra given away, traded, or sold to others for goods, services, or cash.

This so-called "customary trade" continues to be a mainstay of fish camp existence– a way to get a modest amount of cash for gas, food, and other necessities of fish camp life, to keep the way of life alive.

Customary trade is at the moment the only thing that keeps fish camps afloat as a persistent economic and cultural feature of the Alaskan rural scene – the genuine article– instead of a recreational pursuit available only to those with sufficient incomes to afford the time off for what would be in effect a hobby camp.

Most families at the camps have at least one member owning a commercial limited entry fishing permit. Therefore, a typical mix of economic activities at a camp involve fishing the commercial seasons (typically one or two openings of 18 hours each per summer over the past decade, a small and ever-shrinking amount of fishing time) and, during the rest of the season, putting up dried fish for the family's use and for limited customary trade – sometimes for cash.

In January of 2003, the Federal Subsistence Board came up with regulations attempting to clarify the limits of this subsistence customary trade, and that was the subject of one of the bulk-mail pamphlets sent out to rural fishermen this spring.

The outward intent of the new regs is to permit customary trade, while blocking the potential abuse of the law that would result from subsistence fish finding their way into large-scale commercial markets rather than what you might call family, or mom and pop type markets. It's a good motive.

Unfortunately, this attempt at rule making ends up complicating rather than clarifying the issue. In a series of preambles the pamphlet endorses traditional customary trade of subsistence fish. Then, in a Q and A section a few paragraphs further it answers the question of whether a rural resident can sell processed fish (ie, smoked dried fish) to others with a single word: "No."

Thus, in a single sweep, one hundred years of legitimate trading activity in smoked, dried salmon – a soul food and a cultural icon for Native Alaskans – is rendered illegal. Then, while the subsistence fisherman/reader mulls over this distressing thought, the next paragraph teases us with the statement that, "Small-scale sales of processed subsistence fish have not been the focus of law enforcement. The priority for federal enforcement of these provisions will be on large-scale cash sales that are not consistent with customary and traditional practices." In other words, you guess where the line lies, and take your chances.

Another masterpiece of legal clarity is the statement that "all customary trade of subsistence fish must be separate from your business or commercial fishing activities."

The intent is clear that subsistence fish should not be finding their way into the large "C" commercial markets – something most honest fishermen agree with – but beyond that, does that mean separate income streams and deductions for commercial and subsistence income? Separate fish camps for commercial fishing and subsistence fishing, perhaps separated by a 300-foot buffer zone? Separate boats for each activity? Or what?

WE NEED YOUR HELP!

This is your newsletter and we'd love to hear from you.
We are looking for newsletter submissions –
• ARTICLES • PHOTOS • LETTERS TO THE EDITOR • ANYTHING FISHERIES RELATED •

IT'S TIME TO HEAR FROM YOU!

Deadline for submissions:
Fall – Sept. 20th • Winter – Jan. 20th • Spring – May 20th

For more information or suggestions, contact Erin. 1-877-999-8566

I believe at heart the regulations are well meant, like many human endeavors. Also, it should be noted that the OSM is inheriting a real mess.

I find myself, however, in the strange dilemma of hesitating to complain about this murkiness for fear the OSM will simply use my complaints as a springboard to add more and more layers of complication and confusion to something that was probably best left alone to start with. Nobody was ever able to come up with any very convincing case of abuse by fishermen who engage in customary trade in dry fish, probably because it is so damn much work to make. Who in their right mind would want to use this as a get-rich-quick scheme?

The one thing that is certain was highlighted by one of the other bulk mailings from the OSM: a 31-page directory of the Board members, Interagency Staff Committee, Central Office, Regional Teams, Fisheries Resource Monitoring Program, Regional Council Members, Coordinating Fisheries Committees, Management Delegates, State ADF&G liaisons, and "Related Programs". A pretty good basket full of people are involved in this attempt at codifying the un-codify-able.

I just wish it translated into something worthwhile: an enduring sense of legitimacy for the people who are supposed to be served by these proliferating management teams – the subsistence fishermen engaged in customary trade – rather than more paper.

Charlie Campbell, Tanana

PLEASE SHARE YOUR THOUGHTS AND IDEAS WITH US!

You can mail your letters to: Yukon River Drainage Fisheries Association, Attn: Newsletter, 725 Christensen Drive, Suite 3-B, Anchorage, AK 99501. They can also be e-mailed to: erin-yrdfa@alaska.com

All correspondence needs to include the author's name and community.

Letters that appear in this column do not necessarily reflect the opinion of the Yukon River Drainage Fisheries Association.

SALMON HARVEST ON THE YUKON RIVER PRIOR TO STATEHOOD

BY DION CLARK-POLLY,
TEK INTERN

To the peoples living near the Yukon, salmon has been a major food source for unrecorded generations. Virgil Umphenour, one of the original founders of YRDFA, has provided us with A Social History of the Yukon River – Fisheries Prior to Statehood by Michael Carey. Carey has reviewed the historical accounts of explorers, missionaries and governmental records to give us a picture of salmon harvests on the Yukon River before Statehood in 1952.

Carey first mentions Lieutenant L.A. Zagoskin's account in 1842-44 of salmon being taken on the Yukon by dip net, spear, seine, fish trap and gill net with the catch being dried and stored. By 1914, Bureau of Fisheries Agent H.O. Smith in his travels from St. Michael to Whitehorse related that use of the fish wheel was prevalent, having been introduced by miners during the gold rush. Particularly on the central Yukon, large amounts of salmon were being dried and smoking of salmon had become commonplace.

The first commercial fishery began with the selling of fresh king and chum in the Yukon Territory camps during the Klondike Gold rush. Bureau of Fisheries records from 1903 to 1916 show the total catch ranging from 70,000 lbs to 229,000 lbs with the nine-year average being 166,964 lbs. For the most part, the Bureau of Fisheries continued to keep records of commercial and subsistence catch up until statehood, although data for some years was not available and units were sometimes listed as cases, casks and tierces (a 42 gallon cask) and other times as pounds and tons. YRDFA has Carey's commercial and subsistence harvest numbers in a more straightforward format for anyone interested in reviewing them. Aside from the subsistence and commercial harvest data, Carey's paper gives a lot of valuable TEK information, such as run strength and weather and breakup data among other things.

Carey wraps up his article with a brief summary on the history of regulations, agreeing with state researchers Pennoyer, Middleton, and Morris' statement that "the history of regulation on the Yukon and Kuskokwim has been one of trying to protect the large Eskimo and Indian subsistence fisheries in these rivers" usually by restricting commercial harvests. Carey adds that there wasn't anything akin to modern management until 1953 when the Yukon was assigned a part-time USFWS biologist.

We would like to express our thanks to Virgil for providing us with Michael Carey's piece documenting past salmon use on the Yukon River. YRDFA is interested in any other historical documentation that folks might have of salmon usage on the Yukon River that we can add to the TEK Resources file that we are compiling.

In-Season Management Teleconferences

JUNE 3RD – MID-SEPTEMBER
EVERY TUESDAY AT 1:00 PM

To join the call,
dial
1-800-861-4084
and enter
participant code
9966815#

"Post me on the fridge!"

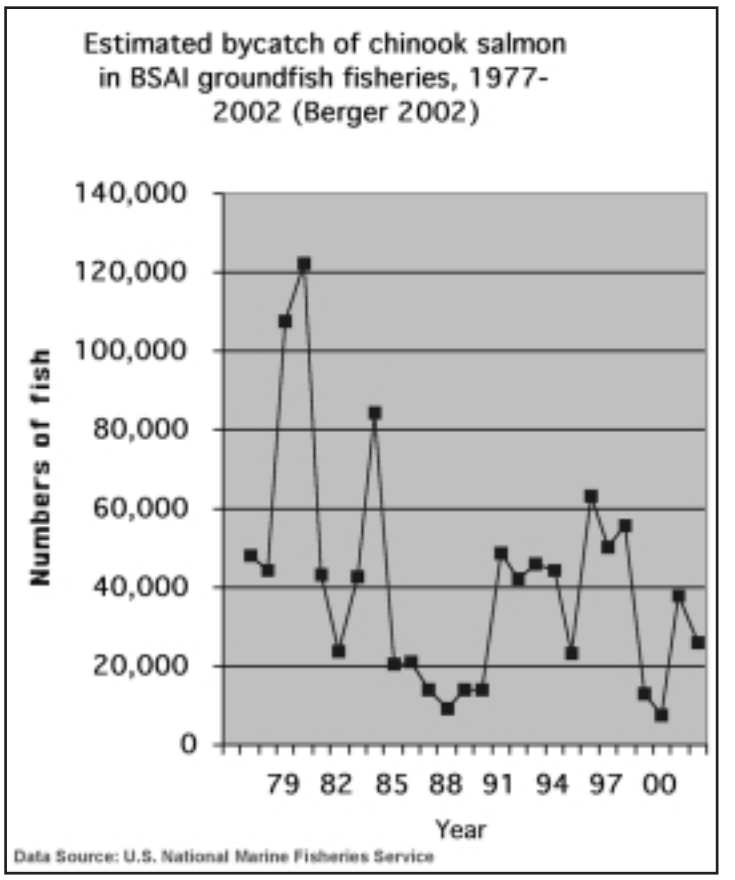
CHINOOK SALMON BYCATCH IN THE BERING SEA GROUNDFISH TRAWL FISHERY

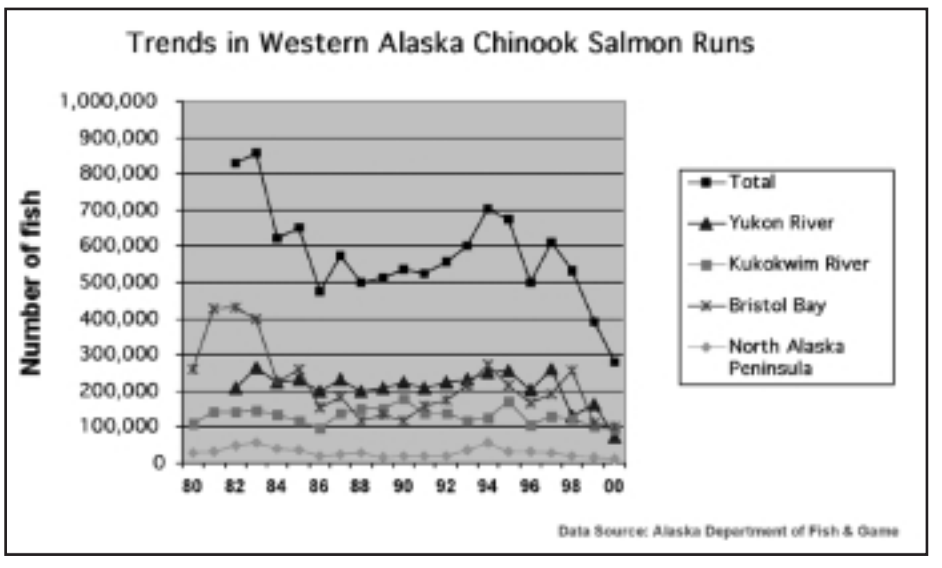
BY DR. KATE MYERS,
UNIVERSITY OF WASHINGTON,
SCHOOL OF AQUATIC &
FISHERY SCIENCES

Since the late 1990s, returns of chinook salmon to western Alaska rivers have declined to record lows (see figure, *Trends in Western Alaska Chinook Salmon Runs*). When salmon returns to rivers are low, even relatively low incidental catches of salmon by non-target marine fisheries may hinder salmon resource management and conservation efforts. Western Alaska commercial and subsistence salmon fishermen are concerned about the effect on their fisheries of salmon bycatch by U.S. groundfish trawl fisheries for walleye pollock in the eastern Bering Sea (see figure, *Estimated bycatch of Chinook salmon in BSAI groundfish fisheries, 1977-2002*).

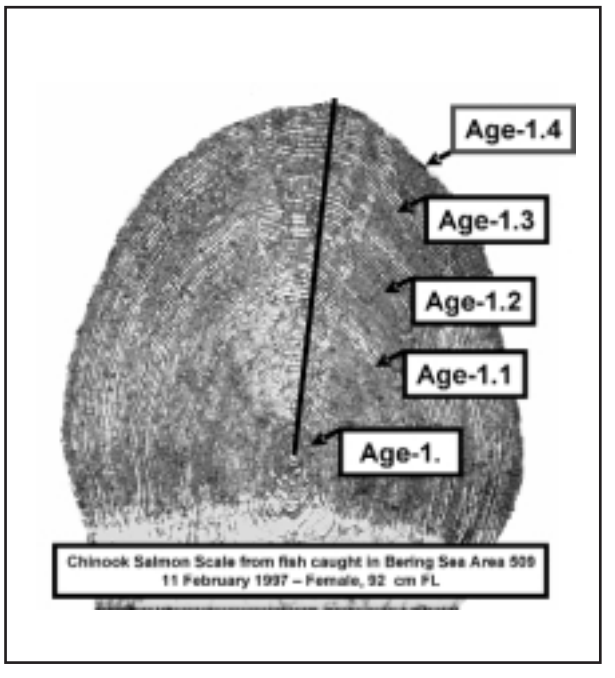
Recently a team of fishery scientists at the University of Washington completed a 2-year study to estimate the regional stock composition of chinook salmon in the Bering Sea groundfish bycatch. The investigation used U.S. National Marine Fisheries Service observer samples and data collected during the period of chinook salmon decline from 1997 through 1999. The results were presented for the first time by Dr. Kate Myers, lead investigator of the YRDFA/NOAA-funded investigation, at YRDFA's Annual Meeting in Kotlik, Alaska in January 2003.

Distinctive growth patterns on the scales of adult salmon from major rivers of Asia and North America were used to estimate the mixing proportions of regional stock groups in the fishery bycatch samples (see picture of chinook salmon scale, *Chinook Salmon-Bering Sea Area 509*). Myers compared their new results to those of an earlier study that used similar methods to estimate the stock proportions of chinook salmon bycatch by foreign and joint-venture groundfish fisheries in the eastern Bering Sea in 1979-1982. The early 1980s was a period of high abundance of Western Alaska chinook salmon, and an estimated 60% of the total chinook salmon bycatch in the Bering Sea groundfish fisheries was Western Alaska stocks.





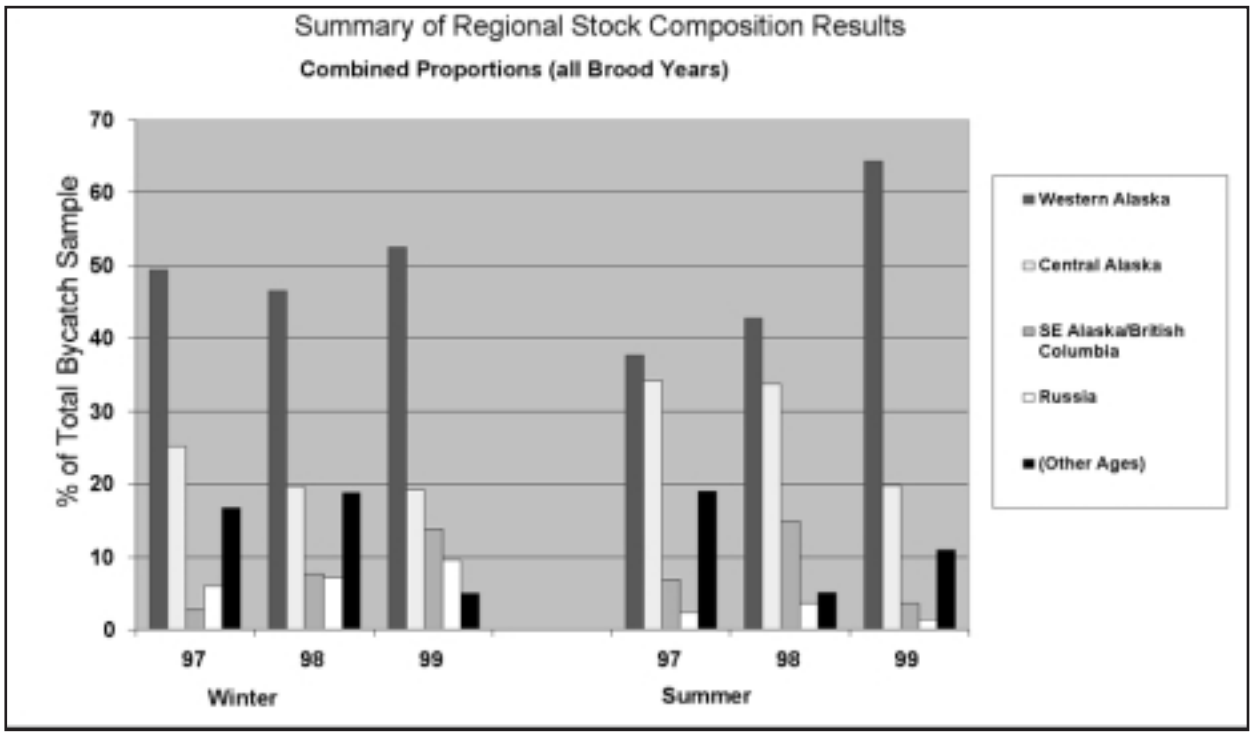
The results of the new UW study show that chinook salmon in recent, 1997-1999, bycatch samples are older than those caught during the earlier period, 1979-1982. Myers said, "this is probably because there was a major eastward shift in the fishery area between the two studies, from offshore areas west of 170 degrees West longitude in 1979-1982 to inshore areas east of 170 degrees West longitude in 1997-1999 (*see map of NMFS statistical areas*). After their first summer at sea,



young immature chinook salmon tend to be distributed farther offshore or more distant from their home streams than older age groups of immature and maturing chinook salmon.

Even though Western Alaska chinook salmon runs have greatly declined in recent years, the results of the new UW study show that they continue to be the predominant regional stock group in the Bering Sea salmon bycatch in winter (see *Summary of Regional Stock Composition Results*). In addition, Yukon River salmon were often the dominant sub-regional stock group in the winter fishery bycatch, particularly among the oldest age groups. Myers said, "the waters over the eastern Bering Sea continental shelf-break (between the 100-200 m depth contour), where chinook salmon are taken by the groundfish fishery, may be the major overwintering grounds of maturing Yukon River chinook salmon."

Myers concluded her presentation by emphasizing that government agencies charged with managing the stocks (U.S. National Marine Fisheries Service, Alaska Department of Fish and Game) should be conducting detailed investigations of the genetic stock composition of chinook salmon in the groundfish fishery bycatch. Myers said, "fishery managers need to know how changes in the times and areas of operation of the groundfish fishery may affect returns of different genetic stocks of salmon to the Yukon River."



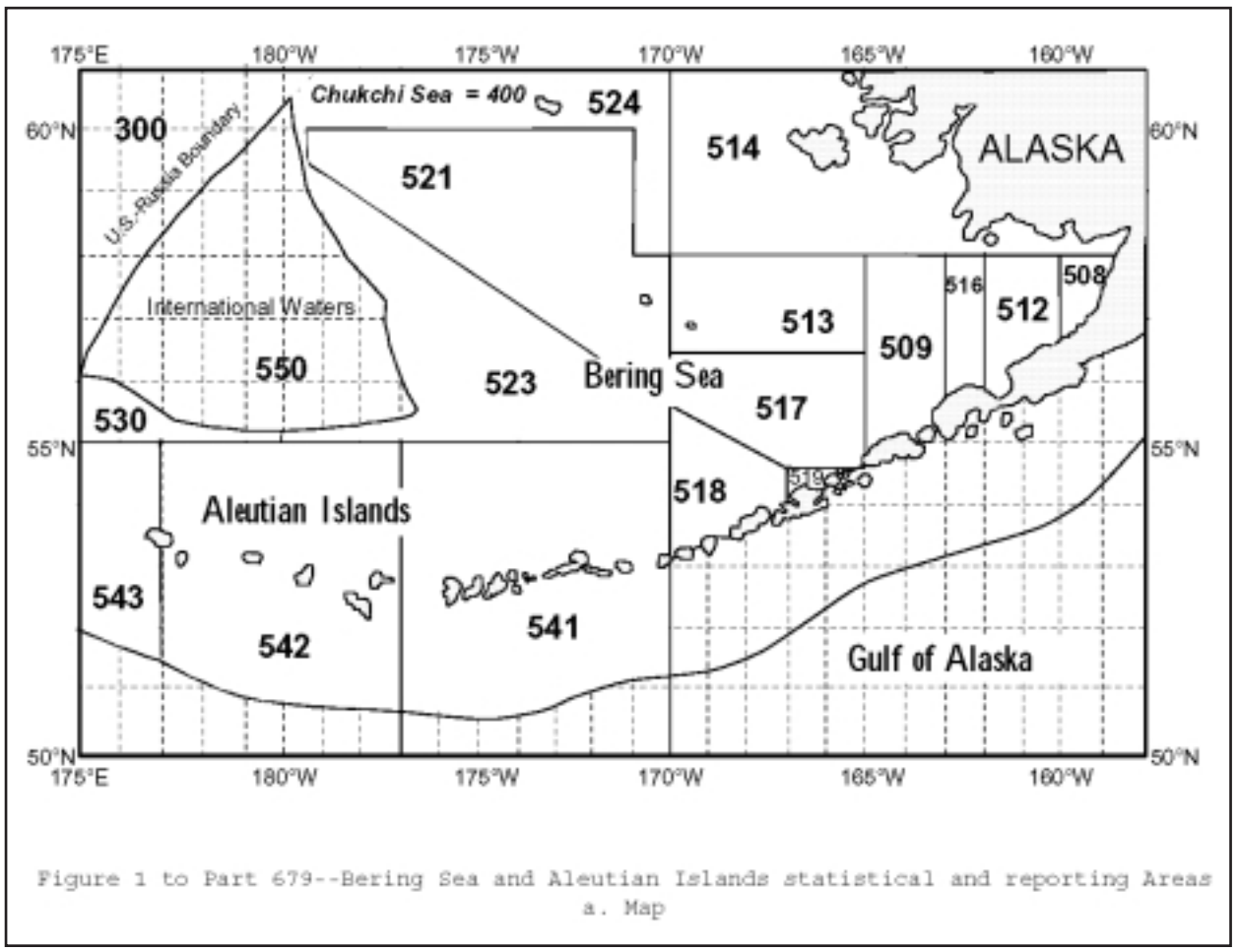


Figure 1 to Part 679--Bering Sea and Aleutian Islands statistical and reporting Areas
a. Map

Map credit: NMFS

"When you put your hand in a flowing stream, you touch the last that has gone before and the first of what is still to come."

–LEONARDO DA VINCI

CALL FOR 2004 PROJECT PROPOSALS

YUKON RIVER RESTORATION & ENHANCEMENT FUND

Relating to Salmon of Canadian Origin

CONCEPTUAL PROPOSALS DUE OCTOBER 10, 2003

- Response to this call for conceptual proposals is the first essential step for applicants to the Yukon River Panel's salmon restoration and enhancement (R&E) fund in 2004.
- Panel R&E funds are committed to conservation, research and management projects directed at salmon stocks of Canadian origin in the Yukon River watershed in Yukon and Alaska; to develop community-based stewardship for salmon and their habitats, and maintaining viable salmon fisheries in Yukon.

Yukon River Panel's R&E Program

- The Yukon River Panel is mandated by the U.S.A./Canada agreement on Yukon River Salmon (March 29, 2001) enabled by the Pacific Salmon Treaty (1985).
- An important part of this agreement is use of the Panel's R&E fund to achieve its salmon stock and habitat restoration objectives.
- Applicants are strongly urged to review their conceptual proposal with an agency technical contact before submitting their conceptual proposal to the Panel.
- Project applicants will be kept informed on the status of the Panel's decisions and administrative processes.

Call and Review Schedule for 2004 R&E Project Proposals

Step 1 – May - August	E-mail alerts to previous R&E project contractors concerning the Panel's 2004 R&E schedule; notice in the spring 2003 YRDFA newsletter; ongoing encouragement of potential applicants by Panel members and agency staff as opportunities arise; and, public notice on ADF&G and Panel web sites.
Step 2 – September 1	Advertise the call for conceptual proposals (CPs) in the Anchorage, Fairbanks and Whitehorse newspapers.
Step 3 – October 10	Deadline for 2004 CPs to be filed with the Panel's Executive Secretary – preferably by e-mail.
Step 4 – December 12	Panel decisions on the 2004 conceptual proposals.
Step 5 – December 16	E-mail response to each CP applicant indicting either: • "Approved" – the applicant is encouraged to submit a detailed project proposal based on the CP as submitted; • "Modified" – the applicant is encouraged to submit a detailed project proposal to incorporate the revisions requested by the Panel review comments on the CP; • "Other" – as determined by Panel comment; or, • "Not Approved" – being of relatively low priority, or not meeting the criteria of the Panel's R&E program.
Step 5 – January 20	Deadline for receipt of detailed project proposals.
Step 6 – March 15 (approx.)	Panel review of detailed project proposals, with decisions communicated to applicants the following week.

Assistance to Project Proponents

Those wishing to participate in the Panel's R&E program are encouraged to contact agency technical staff and the Panel's Executive Secretary – we will work with you to help produce your best application for the Panel's consideration.

For administrative information and to submit applications:
Hugh J. Monaghan
Executive Secretary
Yukon River Panel
Box 20973
Whitehorse, Yukon
Y1A 6P4
Phone: (867) 393-1900
Fax: (867) 633-8677
E-mail: monaghan@internorth.com

For technical advice:
In Yukon
Al von Finster & Pat Milligan
Fisheries and Oceans Canada, Whitehorse
Phone: (867) 393-6722
Fax: (867) 393-6738
E-mail: vonfinsterA@pac.dfo-mpo.gc.ca
milliganp@pac.dfo-mpo.gc.ca

In Alaska
Susan McNeil
Alaska Department of Fish & Game, Anchorage
Phone: (907) 267-2166
Fax: (907) 267-2442
E-mail: susan_mcneil@fishgame.state.ak.us

We will be pleased to provide:

- Criteria for R&E projects and the Panel's interim summary of priorities
- An outline for conceptual proposals
- An example of a conceptual proposal

And, any other helpful information we can muster for you.

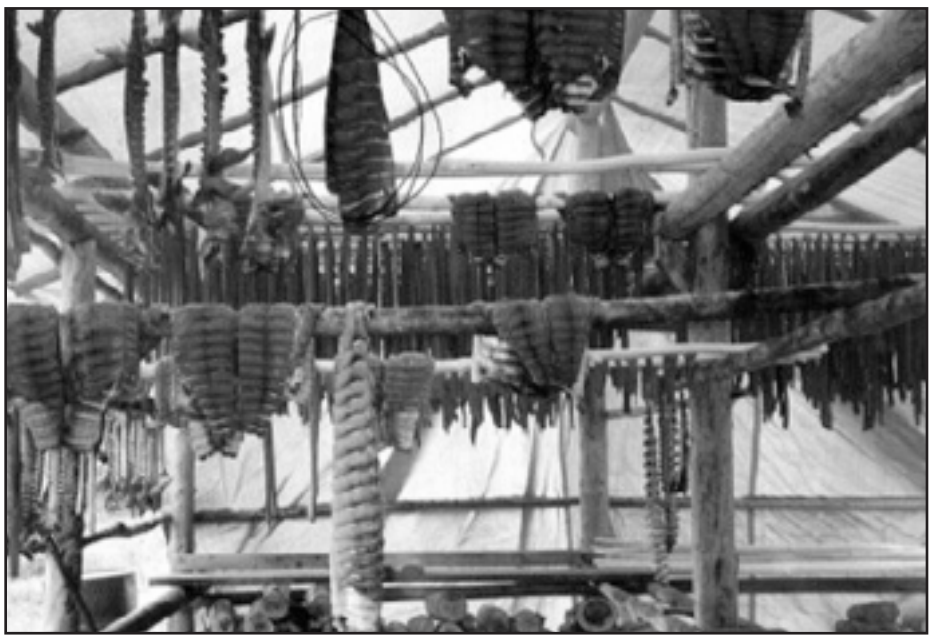


photo by Robert Gibson, CA

YRDFA SURVEY Q & A

YRDFA asked…

WHY IS THE U.S./CANADA AGREEMENT IMPORTANT TO YOU?

The U.S./Canada agreement is important to me because in the long run it will help stabilize the fishery. All the people along the Yukon River have a right to their share of the resource, and so Canadian interests must be included in any management scheme. The U.S. monies provided through the R&E Fund will help to insure that Canadian stocks and spawning areas are protected for the good of us all.

~Bill Fliris (Tanana)

The agreement is important because it provides stability in the fisheries and protection for Canadian origin runs so that these runs will remain healthy and continue to be utilized for commercial and subsistence purposes into the future.

~Ragnar Alstrom (Alakanuk)

A binding agreement puts more pressure on both sides to do what's right for the salmon. About 50% of the chinook spawn in Canadian waters. We need to have the U.S. ensure that a proper amount of females make it over the border and when they do that Canada can provide them with healthy conditions in which to spawn. As with all management practices oversight and review of actions by multiple parties only leads to better science. Two eyes are better than one.

~Stan Zuray (Tanana)

NEXT QUESTION:
What does "customary trade" mean to you?

Responses to survey questions can be submitted by:

US MAIL: YRDFA Newsletter
Attn: Survey Question
725 Christensen Dr., Suite 3-B
Anchorage, Ak 99501

E-MAIL: erin-yrdfa@alaska.com

PHONE: 1-877-999-8566, ask for Erin

Those who respond will have their name entered into a drawing for a YRDFA memento.

PHENOTYPIC CHARACTERIZATION OF CHINOOK

BY CATHERINE MONCRIEFF,
TEK PROJECT MANAGER

YRDFA is beginning a project identifying chinook (king) salmon stock this season. Subsistence fishers from the villages of Holy Cross, Nulato, and Emmonak traditionally harvest chinook salmon that they describe as 'white nose' and 'blue back' salmon. There is speculation that these fish represent distinct runs that may include Canadian origin fish. The run and harvest timing of these types of fish are generally predictable which implies they may be different stocks. If these fish can be identified as separate stocks, direct phenotypic (appearance) identification of fish stocks could prove to be a useful management tool for management of subsistence fisheries, with implications to direct studies in fish biology, stock status, trends, and harvest monitoring. This project will incorporate traditional ecological knowledge (TEK) of the subsistence harvest with the scientific method of genetic analysis and scale pattern analysis (SPA) to determine stock status. This project will be a pilot study to determine if 'white nose' and 'blue back' chinook salmon can be differentiated genetically.

One aspect of the project will include a seasonal technician hired by YRDFA to work at Pilot Station with the Alaska Department of Fish and Game staff. Our technician will be a member of the Pilot Station team through the king salmon season but his main responsibility will be to take genetic samples, a fin clip, of all the chinook caught and to identify them as 'white nose', 'blue back' or other type of king salmon. These samples will be sent to the lab at the end of the season and analyzed for genetic variation.

The other aspect of the project will be characterization or a description of how people identify the different runs of king salmon. In-season subsistence information collection surveys are conducted by the Refuge Information Technicians (RITs), who ask fishers throughout the summer a series of questions to assess how people are doing in meeting their subsistence needs. In partnership with this program, YRDFA has created a list of questions to be asked of the fishers along the Yukon River and its drainages to classify the different runs of king salmon.

This is a pilot project that we hope will assist management in better understanding the runs. YRDFA partners in this project include the U.S. Fish and Wildlife Service, and the Alaska Department of Fish and Game. It is made possible through funding from the Office of Subsistence Management and the National Oceanic and Atmospheric Administration.

MEMBERSHIP FORM

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

"A united voice for downriver and upriver fishermen."

Your membership supports our core purpose, which is to sustain fisheries through cooperative management.

In order to sustain fisheries YRDFA works to:

- Solve problems in fisheries management
- Sustain wild salmon populations
- Keep people informed of current fisheries issues
- Restore salmon habitat and depressed runs

Membership is open to subsistence users, commercial fishermen, processors and sport fishermen. Members receive a newsletter on the latest events affecting Yukon River salmon fisheries and voting privileges for their District's representatives.

ANNUAL DUES:

☐ Subsistence Only User	$ 5
☐ Commercial Permit Holder or Crew Member (1 year) *(You receive a coffee mug)*	$ 10
☐ Sport User/General Public/Student	$ 10
☐ Commercial Permit Holder or Crew Member (2 year) *(You receive a Victorinox pocketknife)*	$ 20
☐ Agency (subscription; no voting privileges)	$ 20
☐ Lifetime Membership *(You receive a mug, a knife, and recognition and thanks in the YRDFA newsletter)*	$100

Payable by cash, check or money order to: **Yukon River Drainage Fisheries Association**

NAME _____ AMOUNT PAID _____

ADDRESS _____ VILLAGE _____

STATE _____ ZIP _____ FISHING DISTRICT _____

CORRECTION

In the last edition of this newsletter we printed an article summarizing our recent *Workshop on Traditional Ecological Knowledge and Salmon Research, Restoration and Management* and regretfully neglected to thank our funders.

YRDFA would like to give a big **thank you** to the U.S. Fish and Wildlife Service, Office of Subsistence Management and the National Oceanic and Atmospheric Administration for making it possible to host such an event. With funding from both of these supportive agencies, we were able to bring 20 representatives in from Yukon River communities to meet with agency representatives and managers of the Yukon River fishery for this two day workshop. Without the support of agencies like these, YRDFA would not be able to accomplish the many things it does.